

Ventura's Water Quality Summary 2008

Utilizing data collected in 2007, unless noted.
Only water quality constituents detected by laboratory testing appear in the chart.

PRIMARY STANDARDS (PDWS)	Units	Maximum Level MCL	State Goal PHG	Ventura River Average	Ventura River Range	Ground Water Average	Ground Water Range	CMWD Average	CMWD Range	Major Sources of Contamination in Drinking Water (Footnotes)
Water Clarity										
Treated Turbidity	NTU	TT	NA	0.15 (a)	0.03 - 0.29(a)	0.28	0.1 - 1.0	0.08 (b)	0.01-0.08 (b)	1
Radioactive Contaminants (e)										
Gross Alpha particle activity	pCi/l	15	NA	4.26	0.96 - 10.0	9.1	2.9 - 27.6	1.1	0.3 - 2.1	2
Radium 226	pCi/l	5	NA	0.08	ND - 0.27	0.28	0.11 - 0.89	NA	NA	2
Uranium (c)	pCi/l	20	0.5	3.0	1.8 - 4.9	11.4	3.4 - 25.9	NA	NA	2
Inorganic Contaminants										
Fluoride	ppm	2	1	0.43	0.33 - 0.57	0.52	0.43 - 0.64	0.3	0.3	4
Selenium	ppb	50	NA	ND	ND	6	ND - 18	ND	ND	5
Nitrate (as Nitrogen)	ppm	10	10	ND	ND - 0.5	2.0	ND - 2.4	ND	ND	6
Lead and Copper Samples	Units	RAL	PHG	Samples Collected	Above RAL	90th Percentile	Major Sources of Contamination in Drinking Water			
Lead	ppb	15	2	55 (d)	1	9	7			
Copper	ppm	1.3	0.17	55 (d)	1	1.09	7			

Footnotes: ¹ Process and source variations ² Erosion of natural deposits ³ Erosion of natural deposits; runoff from orchards; glass and electronics production waste ⁴ Erosion of natural deposits; water additive that promotes strong teeth; discharge from fertilizer and aluminum factories. ⁵ Discharge from refineries or manufacturers; erosion of natural deposits. ⁶ Runoff and leaching from fertilizer use; leaching from septic tanks and sewage; erosion of natural deposits. ⁷ Internal corrosion of household plumbing systems

PRIMARY STANDARDS for Distribution System	Units	MCL MRDL	PHG (MCLG) MRDLG	Distribution System Average	Distribution System Range	Major Sources of Contamination in Drinking Water
Disinfection						
Chloramine Residual	ppm	4	4	2.3	0.9 - 3.5	Drinking water disinfectant added for treatment.
Disinfection By Products						
Total Trihalomethanes	ppb	80	NA	29 (c)	5 - 84	By-product of drinking water chlorination.
Total Haloacetic Acids	ppb	60	NA	25 (c)	2 - 73	By-product of drinking water chlorination.
Microbiological Contaminant Samples						
Total Coliform Bacteria	NA	5%	0	0	0	Naturally present in the environment.
Fecal Coliform Bacteria	NA	0	0	0	0	Human and animal fecal waste.

SECONDARY STANDARDS	Units	Maximum Level MCL	Ventura River Average	Ventura River Range	Ground Water Average	Ground Water Range	CMWD Average	CMWD Range
Aesthetic Standards								
Color	Color	15	5	ND - 15	5	ND - 10	10	10
Odor	Threshold	3	ND	ND	ND	ND	ND	ND
Chloride	ppm	500	28	15 - 48	61	54 - 76	10	10
Corrosivity	ppb	Non corrosive (+)	0.11	-0.15 - 0.82	0.47	-0.3 - 0.52	0.2	0.2
Iron (TT)	ppb	300	ND	0.13	ND	ND - 190	NS	NS
Total dissolved solids	ppm	1000	630	310 - 728	1195	982 - 1616	360	360
Specific conductance	umhos	1600	728	568 - 1035	1646	1336 - 2130	539	539
Sulfate	ppm	500	170	122 - 249	613	401 - 660	126	126
pH	pH units	6.5 - 8.5	7.65	7.49 - 8.12	7.44	7.23 - 7.93	7.7	7.7
Hardness	ppm	NS	292	227 - 392	574	471 - 758	227	227
Calcium	ppm	NS	76	55 - 103	150	122 - 207	58	58
Magnesium	ppm	NS	25	21 - 34	49	36 - 65	20	20
Manganese (TT)	ppb	50	ND	ND	ND	ND - 70	ND	ND
Sodium	ppm	NS	31	21 - 47	126	92 - 185	23	23
Phosphate	ppm	NS	0.08	ND - 0.22	0.17	0.06 - 0.89	NS	NS
Potassium	ppm	NS	2.2	2.1 - 2.5	4.7	3.8 - 6.6	2	2
Total Alkalinity	ppm	NS	169	143 - 214	263	248 - 286	140	140

Footnotes: (a) Average is maximum reading Avenue Plant Surface Filtration (TT) = 95% of samples equal or below 0.3 NTU. (b) Average is maximum reading CMWD Direct Filtration (TT) = 100% of samples equal or below 0.2 NTU (c) Highest running average cannot exceed the MCL. (d) Samples were taken at selected households on a first draw in August 2005. (e) Monitoring completed in 2007.

Legend	
ppm:	Parts per million or milligrams per liter.
pCi/l:	Picocuries per liter, a measure of radioactivity in water.
CMWD:	Casitas Municipal Water District
TT:	A required process intended to reduce the level of contaminant in drinking water
ppb:	Parts per billion or micrograms per liter.
NA:	Not applicable
ND:	Not detectable
NS:	No standard
NTU:	Turbidity, a measure of the clarity or cloudiness of the water.

Water Quality Terminology	
The Water Quality Summary shows constituents measured in Ventura's water and reported to the State Department of Health Services, and in some cases the USEPA. Some of the terminology used is described below:	
Maximum Contaminant Level (MCL):	The highest level of a contaminant that is allowed in drinking water. Primary (health related) MCLs are set as close to the Public Health Goals (PHGs) or Maximum Contaminant Level Goals (MCLGs) as is economically and technologically feasible. Secondary (aesthetically related) MCLs are set to protect the odor, taste and appearance of drinking water.
Maximum Contaminant Level Goal (MCLG):	The level of contaminant in drinking water below which there is no known or expected risk to one's health. MCLGs are set by the USEPA.

Public Health Goal (PHG):	The level of a contaminant in drinking water below which there is no known or expected risk to one's health. The California Environmental Protection Agency sets PHGs.
Maximum Residual Disinfectant Level (MRDL):	The level of a disinfectant added for water treatment that may not be exceeded at the consumer's tap.
Maximum Residual Disinfectant Level Goal (MRDLG):	The level of a disinfectant added for water treatment below, which there is no known or expected risk to health. MRDLs are set by the USEPA.
Primary Drinking Water Standard (PDWS):	MCLs and MRDLs for contaminants that affect health along with their monitoring and reporting requirements, and water treatment requirements.
Regulatory Action Level (RAL):	The concentration of a contaminant, which, if exceeded, triggers treatment or other requirements that a water system must follow.

WATER QUALITY
CONFIDENCE REPORT 2008

The City of Ventura welcomes this opportunity to provide you with annual water quality and supply information. Its Water Division personnel work diligently to ensure that our city's water meets or exceeds state and federal drinking water standards and regulations with no violations.

The United States Environmental Protection Agency (USEPA) through the Safe Drinking Water Act establishes federal regulations for drinking water standards, monitoring and reporting protocols. The California Department of Public Health (CDPH) has the authority to establish additional requirements. The City of Ventura exceeds some of the state and federal requirements to produce water of high quality and ensure public health.

The City of Ventura has prepared this 2008 Water Quality Consumer Confidence Report in compliance with the State Health and Safety Code requirements gathering most data in 2007. In order to produce, treat and distribute safe drinking water to our customers, the City owns and operates 11 wells, three water treatment plants, two treated water connections from Lake Casitas, 23 booster pump stations, 31 water storage reservoirs, and more than 380 miles of distribution pipelines.

For More Information

If you would like more information regarding the City's water quality, facility improvements, or studies, please contact Ventura's Water Superintendent at 805.652.4500. This Water Quality Confidence Report is also available on the City's website at www.cityofventura.net.

You are invited to express your opinions at City Council meetings in the Council Chambers at Ventura City Hall, 501 Poli Street.

Este informe contiene información muy importante sobre su agua potable. Para más información o obtener copias del informe de agua en español llame 652-4500.



Ventura River at Foster Park

Ventura's Water Sources

The City has three local water sources; each accounts for approximately one third of the entire water supply. A portion of Ventura's water is from the **Ventura River** and is pumped from four shallow wells and a subsurface collector. This water drains from a 51,000-acre lower watershed in the Ojai and Ventura River Valleys that include the tributaries of the San Antonio and the Coyote Creeks. Water is also purchased from **Lake Casitas**, which is operated and treated by the Casitas Municipal Water District (CMWD) for distribution through the City system to customers. Most of this water drains from the upper watershed that is federally protected to limit contamination of the lake. Water quality in the river and the lake are similar. Additional water is pumped from deep **groundwater wells** located in the City's east side near Victoria Avenue and in Saticoy. Water quality from the aquifers in the Fox Canyon, Mound, and Santa Paula groundwater basins are similar, but include about twice as much total dissolved solids (TDS) or minerals (hardness) than from the upper and lower watersheds that drain to the river.

Ventura's water meets or exceeds state and federal primary standards.

Water Treatment

All of the City's water receives treatment. Major changes in the method to treat water from the Ventura River at the Avenue Water Treatment Plant occurred during the last half of 2007. Since 1939 water from the Ventura River was treated by a method referred to as Conventional Surface Water Treatment. This process involves prechlorination (control bacteria and algae), coagulation (chemical addition), flocculation (gentle agitation), sedimentation (settling particles), media filtration with sand and anthracite (removing bacteria and turbidity), and disinfection (killing bacteria and viruses) with chlorine.

Since August, water from the Ventura River is treated with a more reliable method referred to as membrane ultrafiltration (UF). This is a more effective treatment process than media filtration. It involves prechlorination (control bacteria and algae), coagulation (chemical addition), membrane filtration (removing bacteria and turbidity), and disinfection with chlorine to ensure effective removal of viruses and bacteria. After the membrane process, caustic soda and polyphosphate are added to help minimize the corrosion of plumbing in your home. Ammonia is also added that combines with chlorine to form the final disinfectant for the drinking water. Thousands of UF hollow fiber filtration membranes provide a physical barrier to pathogens and particles in the water larger than the 0.02 micron pore size. This pore size excludes anything larger including bacteria, giardia, and cryptosporidium, and to large extent viruses that are all larger than 0.02 microns.

The groundwater sources are treated at either the Bailey or Saticoy Plants with prechlorination and direct media filtration to remove iron, manganese, and turbidity particles, and disinfected with chloramines. Additional treatment with polyphosphate is provided at each plant to help minimize the corrosion of plumbing in your home. CMWD also treats the water from Lake Casitas with direct media filtration and with chloramines for disinfection prior to delivery into the City's system.

The City uses chloramines for disinfection in the distribution system. Chloramines are chemicals that contain chlorine and ammonia. Chloramines were selected as the preferred disinfectant because of their ability to provide disinfection over an extended period of time, and for better taste and fewer odors compared to using chlorine alone. Chloramines have been proven to effectively kill microorganisms while producing lower levels of byproducts such as trihalomethanes (TTHMs) and haloacetic acids (HAAs), which are potentially harmful. Drinking water containing these byproducts in excess of the MCL may lead to adverse health effects, liver or kidney problems, or nervous system effects, and may lead to an increased risk of cancer.

Although Chloramines are desirable in protecting the water distribution system, their use requires additional precautions for some water uses. If a member of your household requires dialysis, you should contact your physician or dialysis service provider to assure proper protective equipment is used. If you use tap water for fish or other aquatic animals that use gills for breathing, you need to test and be sure the chloramines are completely removed before use. Setting water in an open container for 24 hours prior to use will not remove all chloramines in the water. Your local pet store can provide information and products for the proper removal of chloramines.



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Water Quality Monitoring and Reporting

Ventura owns and operates a full-scale, state-certified laboratory to monitor water quality. Outside state-certified labs are also used as necessary. State-certified personnel are required to operate Ventura's treatment plants and the distribution system. Additionally, the plants have instrumentation that continuously monitors specific water constituents to ensure that the treatment method is producing water of high quality. Water quality constituents that were detected by the laboratories during 2007 are listed on the Water Quality Summary Table (see back page). Many constituents are monitored less than once per year because the concentrations of these contaminants do not change frequently. Therefore, some data, though representative, can be more than one year old.

The City submits monthly and annual reports to the state for review that summarize treatment performance and drinking water quality. The state inspects the City's water system each year and submits its findings to the City. The state prepared an Engineering Report dated August 3, 2007, finding that the city's sources, facilities, and operation are capable of producing a safe, wholesome and reliable quality of water supply; and meet the state and federal standards and regulations for drinking water.

Since 2002, the City has monitored water quality along the Ventura River, Coyote Creek and San Antonio Creek for Cryptosporidium, Giardia, Bacteria, Nutrients, Bromide, Total Organic Carbon, Chloride and Conductivity. This additional testing is part of an expanded sampling program to detect potential contaminants in the watershed allowing the City to better plan future production and treatment improvements.

Turbidity is a measure of the cloudiness of the water. The City and CMWD are required to monitor for turbidity every 15 minutes because it is a good indicator of water quality and the effectiveness of the filtration processes, especially for surface waters. High turbidity can hinder the effectiveness of the microbial disinfectants.

Water System Studies & Improvements

A Water System Master Plan is prepared about every 10 years and will be completed by the end of 2008. The plan will include an evaluation of the water systems capacity and delivery capabilities and provide recommendations for capital improvements based on an analysis of water supply, distribution, and water quality. Current improvement projects underway include addition of two wells on the Eastside, evaluating Foster Park well field strategies, improvement of various water mains throughout the City, and an emergency generator for uninterrupted operation of one of the critical booster pump stations.

The City, like other water purveyors in the country, completed a federally mandated review of its water system security. This review evaluated the water facilities and prioritized security measures that can help minimize the risk of damage or contamination due to a malevolent act. The City already has and will continue to take steps to improve the protection of City water facilities.

In April 2006, the City completed the five-year update to the Sanitary Survey of the Lower Ventura River Watershed. The purpose of the study is to identify potential sources of contamination within the watershed, to make recommendations on how to reduce risks to the water supply, and to make adjustments to the ongoing watershed water quality monitoring program.

A separate Drinking Water Source Assessment for the City's water sources was completed in January 2002. Its purpose was to identify existing or potential threats to every source of

supply including groundwater. No contaminants have been detected in the water supply from surrounding sources such as gas stations, agricultural drainage, dry cleaners, urban run off, sewer systems, metal plating/finishing and repair shops.

As a water supplier, the City must complete an evaluation of its drinking water supply with respect to Public Health Goals (PHG) every three years. The goals are advisory only, requiring public notification, and are not mandatory limits. The City completed the last evaluation in 2007, which determined that ten chemicals, although well below the maximum contaminant level limit, exceeded a state PHG or the federal MCLG. These were lead, copper, arsenic, uranium, gross alpha & beta particles, radium 226, bromodichloromethane, bromoform, and dichloroacetic acid.

Copper and lead can be found in water as a result of the corrosion of plumbing fixtures used in most homes. The City has conducted tests to optimize its treatment with corrosion inhibitors in an effort to further reduce lead and copper levels. High levels of lead can result in kidney problems or high blood pressure, and delays in physical and mental development in children. High levels of copper are known to cause gastrointestinal disturbance and kidney damage. Arsenic, and the four naturally occurring radioactive isotopes that typically occur in drinking water by the erosion of natural deposits are considered carcinogenic. Noncarcinogenic effects of uranium on the kidneys and the liver have been documented. Radium is known to cause tumors. Bromodichloromethane, bromoform, and dichloroacetic acid are formed during the disinfection process with chlorine and can increase the risk of cancer and effects on the liver, kidney and central nervous system.

Potential Concerns

In order to ensure tap water is safe, the United States Environmental Protection Agency (USEPA) and the California Department of Public Health prescribe regulations that limit the amount of certain contaminants in water provided by public water systems. The City of Ventura treats its water to meet these regulations. The regulations of the Food and Drug Administration establish limits for contaminants in bottled water, which must provide the same protection for the public health.

Drinking water, including bottled water, may contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the USEPA's Safe Drinking Water Hotline at 1-800-426-4791.

Sources of drinking water (both tap and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs and wells. As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals and can pick up contaminants resulting from the presence of animals or from human activity.

Contaminants that may be present in source water include:

- Microbial contaminants, such as viruses and bacteria that may come from sewage treatment plants, septic systems, agriculture and livestock operations and wildlife.
- Inorganic contaminants, such as salts and metals that may be naturally occurring or result from urban

stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining or farming.

- Pesticides and herbicides from a variety of sources, such as agriculture, urban stormwater runoff and residential uses.
- Organic chemical contaminants, including synthetic and volatile organic chemicals that are byproducts of industrial processes and petroleum production, and can also come from gas stations, urban stormwater runoff, agricultural applications, and septic systems.
- Radioactive contaminants that can be naturally occurring or be the result of oil and gas production and mining activities.

The uranium content in the City's water supplies is generally well below the maximum contaminant level of 20 pCi/L. However, during 2007, the average of quarterly samples for the Mound Well was 17 pCi/L. This well also contains higher than average total dissolved solids and sulfate levels. The well is operated less often than the other wells and its water is blended with the other groundwater sources to lower the TDS, sulfate and uranium content in the water. Some people who drink water containing uranium in excess of the MCL over many years may have kidney problems or an increased risk of getting cancer.



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Some people are more vulnerable to contaminants in drinking water than the general population. Immuno-compromised individuals, such as people with cancer, those undergoing chemotherapy, people who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly people and infants can be particularly at risk from infections and are at greater risk of developing life-threatening illnesses. The City encourages immuno-compromised individuals to consult their doctors regarding appropriate precautions to avoid infection.

The City takes precautions to eliminate the risk of infection from microbial contaminants, including viruses, bacteria, Giardia and Cryptosporidium, from its water system. These organisms are found in surface water throughout the United States and ingesting them may cause an abdominal infection. The City has been sampling for possible risks in the watershed since 2000. The new membrane filtration and disinfection improvements installed at the Avenue Treatment Plant are very effective at removing these contaminants. The media filtration used by Casitas, although good at the removal of Giardia and/or Cryptosporidium is not considered 100% effective. Symptoms of infection include nausea, diarrhea and abdominal cramps. Most healthy individuals can overcome the infection within a few weeks. However, immuno-compromised people are at greater risk of developing life-threatening illness, and are encouraged to consult their doctor regarding appropriate precautions to take to avoid microbial infection. Cryptosporidium must be ingested to cause disease, and it may be spread through means other than drinking water. The USEPA and the Centers for Disease Control guidelines on appropriate means to lessen the risk of infection by Cryptosporidium, Giardia and other microbial contaminants are available from the Safe Drinking Hotline at 1-800-426-4791.